

CLAIMS

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1. A heat exchanger for an automotive vehicle having a heat exchanger tank and a baffle system, comprising:

10 a first end tank divided into a first portion and a second portion by a baffle in the first end tank;

a plurality of a first tubes in fluid communication with the first portion of the first end tank, the plurality of first tubes configured to have a first fluid flow therethrough;

15 a plurality of second tubes in fluid communication with the second portion of the first end tank;

the end tank further comprising a contact area having a deformation, perforation, slot or other shaped mating hole for a tab;

wherein:

20 i) the baffle system comprises at least one one-piece double baffle, the one-piece double baffle including at least two baffle profiles and at least one tab; and

ii) the one-piece double baffle is disposed within the end tank and is folded so that the one-piece double baffle has baffle profiles that are roughly parallel to each other.

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2. A heat exchanger as in claim 1 wherein the one-piece double baffle comprises a tab at one section of its folded area and the end tank has a perforation, slot or shaped mating hole for insertion of the tab of the one-piece double baffle.

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3. A heat exchanger as in claim 2 wherein the tab extends through the wall of end tank, thereby securing its position and forming a seal.

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4. A heat exchanger as in claim 3, wherein the seal formed is essentially leak-tight.

5. A heat exchanger as in claim 1, wherein the at least one one-piece
5 double baffle comprises at least two baffle profiles, each of the at least two baffle profiles having a common central portion and forming a chamber portion.

6. A heat exchanger as in claim 1 wherein the at least one tab has a
10 relief means throughout its thickness.

7. A heat exchanger as in claim 2 wherein the end tank has a relief means at a point contiguous with the tab.

8. A heat exchanger as in claim 1 wherein the one-piece double baffle
15 is formed from one continuous piece of material.

9. A heat exchanger tank according to claim 1 wherein the one-piece double baffle for separating fluid sections has perimeter walls that are
20 approximately perpendicular to the tank wall surface.

10. A heat exchanger as in claim 9 wherein the perimeter walls of the baffle profiles have a common center area.

11. A heat exchanger for an automotive vehicle having a heat
25 exchanger tank and a baffle system, comprising:

a first end tank divided into a first portion and a second portion by a baffle the first end tank including;

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a plurality of a first tubes in fluid communication with the first portion of the first end tank, the plurality of first tubes configured to have a first fluid flow therethrough;

5 a plurality of second tubes in fluid communication with the second portion of the first end tank, the plurality of second tubes configured to have a second fluid different from the first fluid, flow therethrough; and

the end tank further comprising at least one deformation, perforation, slot or other shaped mating hole for a tab;

10 wherein:

i) the baffle system comprises at least one one-piece double baffle, each one-piece double baffle including at least two baffle profiles and at least one tab, and,

15 ii) each one-piece double baffle is disposed within the end tank and is folded so that the one-piece double baffle has baffle profiles that are roughly parallel to each other.

12. A heat exchanger as in claim 11 wherein the one-piece double
20 baffle comprises a tab at one section of its folded area and the end tank has a perforation, slot or shaped mating hole for insertion of the tab of the one-piece double baffle.

13. A heat exchanger as in claim 12 wherein the tab extends
25 through the wall of end tank, thereby securing its position and forming a seal.

14. A heat exchanger as in claim 13, wherein the seal formed is essentially leak-tight.

30 15. A heat exchanger as in claim 11, wherein the at least one one-piece double baffle comprises at least two baffle profiles, each of the at least two baffle profiles having a common central portion or area and forming a chamber portion.

16. A heat exchanger as in claim 11 wherein the at least one tab has relief means throughout its thickness.

5 17. A heat exchanger as in claim 12 wherein the end tank has a relief means throughout its thickness at a point contiguous with the tab.

18. A heat exchanger as in claim 11 wherein the one-piece double baffle is formed from one continuous piece of material.

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19. A heat exchanger tank according to claim 11 wherein the one-piece double baffle for separating fluid sections has perimeter walls that are approximately perpendicular to the tank wall surface.

15 20. A heat exchanger as in claim 19 wherein the perimeter walls of the baffle profiles have a common center portion or area.

21. A method for making a heat exchanger tank assembly comprising:

20 manufacturing a one-piece double baffle comprising a tab at an area of insertion, fold or bend on the double baffle and with peripheral walls of the double baffle formed so that they form a central chamber;

25 providing a heat exchanger end tank which comprises a contact area comprising a deformation, perforation, slot or other shaped mating hole for insertion of the tab of the double baffle;

aligning the tab of the baffle and the end tank contact area so that the tab may be inserted into the contact area chamber;

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inserting the one-piece double baffle in the end tank at the contact of the end tank; and

applying a sealing technique such that the double baffle remains in place after the assembly process and the completed heat exchanger assembly may be used in automotive applications.